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WATER REPELLENT TEXTILE FINISHES AND METHOD OF MAKING

ABSTRACT OF THE DISCLOSURE

A composition is disclosed that comprises:

1) a compound of the formula:

$$A^{1}(Si[R^{1}]_{2}O)_{11}(Si[R^{2}][E]O)_{12}Si(R^{3})_{2}A^{2};$$

2) a compound of the formula:

$$B^{1}(Si[R^{4}]_{2}O)_{w}(Si[R^{5}][G]O)_{x}Si(R^{6})_{2}B^{2}$$
; and

- 3) a crosslinker selected from the group consisting of:
 - a) compounds of the formula:

$$Z^{1}(Si[R^{7}]_{2}O)_{v}(SiH[R^{8}]O)_{z}Si(R^{9})_{2}Z^{2}$$
; and

b) compounds of the formula:

$$R^{10} \frac{OR^{11}}{Si}D$$

$$OR^{12}$$

wherein

R¹, R², R³, R⁴, R⁵, R⁶, R⁷, R⁸, and R⁹ are independently selected from the group consisting of alkyl groups of from 1 to 4 carbon atoms;

E is a monovalent organic group comprising at least one epoxy group;

A¹ and A² are independently selected from the group consisting of alkyl groups of from 1 to 4 carbon atoms and monovalent organic groups comprising at least one epoxy group;

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u is an integer from 1 to about 2000;

v is an integer from 0 to about 200;

the sum of u and v is from 1 to about 2200;

G is selected from the group consisting of hydroxy and alkoxy;

B¹ and B² are independently selected from the group consisting of alkyl groups of from 1 to 4 carbon atoms, hydroxy, and alkoxy;

w is an integer from 1 to about 1000;

x is an integer from 0 to about 50;

the sum of w and x is from 1 to about 1050;

 Z^1 and Z^2 are independently selected from the group consisting of hydrogen and alkyl groups of from 1 to 4 carbon atoms;

y is from 1 to about 1000;

z is from 0 to about 2000;

the sum of y and z is from 1 to about 3000;

D is selected from the group consisting of hydrogen, substituted or unsubstituted C_{1-} hydrocarbon moieties, OR^{14} , and moieties of the formula:

$$(C_nH_{2n})$$
 $(OR^{16})_{3-a}$ $(R^{15})_a$

 R^{10} and R^{15} are independently selected from the group consisting of hydrogen, substituted or unsubstituted C_1 - C_{12} hydrocarbon moieties, and OR^{13} ;

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 R^{11} , R^{12} , R^{13} , R^{14} , and R^{16} are independently selected from the group consisting of C_1 - C_6 hydrocarbon moieties;

n is 1, 2, or 3; and

a is 0, 1, or 2.